

PATENT SPECIFICATION

NO DRAWINGS

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COMPLETE SPECIFICATION

Improvements in and relating to the Production of Embossed Fabrics

We, COURTAULDS LIMITED, a British Company, of 16, St. Martin's-le-Grand, in the City of London, England, do hereby declare the invention, for which we pray that a

5 Patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates to the production of fabrics having embossed effects.

It has been proposed to obtain ornamented fabrics by transferring a weave effect, pattern or design from a pattern fabric to another fabric by superimposing two fabrics together 15 with a suitable thick backing fabric under pressure, for example on a perforated roller, and then steaming the fabric assembly. Drying of the patterned fabric may be effected by passing air through the fabrics while they are 20 still assembled on the roller.

It has now been found that when carrying out such a process of embossing a textile fabric, particularly good results may be obtained if the pattern fabric is one made of 25 hard yarns.

According to the present invention therefore, a method of embossing a textile fabric made mainly from thermoplastic fibres with a pattern fabric comprises forming a fabric 30 assembly by superimposing under pressure the fabric to be embossed and a pattern fabric made from a hard yarn and subjecting the fabric assembly to a steaming operation. This method is particularly suitable for embossing 35 fibres composed of cellulose triacetate or other thermoplastic fibres in order to produce durable embossed effects.

The pattern fabric used in this invention is 40 manufactured for example by weaving, knitting or lacing, from hard yarns, the degree of hardness being such that the yarns are able to leave a detailed impression on the fabric to be treated. The hard yarns may be hard

twisted multifilament yarns for example such as have a twist factor F of at least 250 or 45

300 when $F = T\sqrt{D}$, when T is the twist in turns per inch and D is the denier of the of the yarns. The untwisted filament denier of the yarn is at least 5. However, the hard yarns are preferably monofilament yarns. Such monofilament yarns give a clearer patterning effect than do fabrics composed of multifilament yarns especially low twist multifilament yarns. Such monofilament pattern fabrics can be used many times to produce 50 satisfactory permanent patterning effects on cellulose triacetate fabrics. The hard yarns are preferably monofilaments of nylon, for example of nylon 66 or nylon 6, although polyethylene terephthalate monofilaments may also be used.

The present invention may be used for 55 obtaining permanent embossed pattern effects on one or both sides of the fabric composed of cellulose triacetate or other thermoplastic fibres. In either case a backing fabric may be used. For patterning on both sides, the fabric to be patterned is sandwiched between two pattern fabrics, constructed for example of 60 nylon 66 monofilaments, and the sandwich together with a backing fabric is rolled up under pressure on a perforated roller. The fabric assembly is then steamed under predetermined conditions of time, temperature and amount of steam to transfer the patterns to both sides of the fabric being treated. The drying of the fabrics is conveniently effected 65 while the assembly is still on the perforated roller by passing air through the perforations in the roller. The pattern fabrics are substantially unaffected by the treatment and may be used repeatedly in the process as described.

70 By using fabrics of nylon monofilaments as the pattern fabrics, the present invention has enabled us to produce permanent pattern 75

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effects such as embossed effects on cellulose triacetate fabrics.

Although the invention has proved particularly useful for treating cellulose triacetate fabrics, it may also be applied to fabrics woven, knitted or laced from cellulose di-

acetate yarns, polyethylene terephthalate multifilament yarns, nylon multifilament yarns and yarns composed of any of the acrylic fibres.

The invention is illustrated by the following Examples.

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EXAMPLE 1

The embossing fabric was constructed as follows:

Finished width	—	56 inches
Finished ends per inch	—	62
Finished picks per inch	—	30
weave	—	six shaft crepe
Warp yarn	—	0.008 inch diameter nylon 66 monofil
Weft yarn	—	0.010 inch diameter nylon 66 monofil

The fabric to be embossed was constructed as follows:

Finished width	—	54 inches
Finished ends per inch	—	92
Finished picks per inch	—	60
Weave	—	plain
Warp and weft yarns	—	140 denier/35 filament/2 $\frac{1}{2}$ T.P.I./cellulose triacetate

15 The embossing fabric, the fabric to be embossed and a thick interleaf blanket of felted cotton were wound tightly on to a perforated roller, and steam was passed through the roller by way of the perforations for 3 minutes. Excess steam was then sucked off

and the fabrics were dried by drawing cold air through the roller for 5 minutes.

The cellulose triacetate was permanently embossed with the pattern of the nylon monofilament fabric.

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EXAMPLE 2

The procedure described in Example 1 was repeated using fabrics of the following construction:

Finished width	—	40 inches
Finished ends per inch	—	8
Finished picks per inch	—	8
Weave	—	plain
Warp and weft yarns	—	0.020 inch diameter nylon 66 monofil

The fabric to be embossed was constructed as follows:

Finished width	—	36 inches
Finished courses per inch	—	48
Finished wales per inch	—	40
Knit	—	locknit 12, 10 back bar 10, 23 front bar
Warp and weft yarns	—	55 denier/12 filament/2½ T.P.I./cellulose triacetate

5 The embossings on the fabrics obtained in both Examples were found to be permanent to laundering and dry cleaning by standard test methods; no significant loss of tensile strength in the finished woven fabric (Example 1) or of bursting strength in knitted fabric (Example 2) was detected.

10 WHAT WE CLAIM IS:—

1. A method of embossing a fabric made mainly from thermoplastic fibres comprising forming a fabric assembly by superimposing under pressure the fabric to be embossed and a pattern fabric made from a hard yarn and subjecting the fabric assembly to a steaming operation.
2. A method as claimed in Claim 1 in which the fabric assembly and a thick interleaf blanket is wound round a perforated roller and the steaming operation is effected by passing steam from the roller through the fabric assembly and the interleaf fabric.
3. A method as claimed in Claim 1 or 2

in which the pattern fabric is made from monofilaments.

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4. A method as claimed in any of Claims 1 to 3 in which the pattern fabric is made from nylon.

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5. A method as claimed in any of Claims 1 to 4 in which the fabric to be embossed is cellulose triacetate.

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6. A method as claimed in any of Claims 1 to 5 in which the steaming operation is followed by a drying operation while maintaining pressure between the fabrics.

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7. The method of embossing a fabric substantially as described in either of the foregoing Examples.

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8. A fabric which has been embossed by a method claimed in any of the preceding claims.

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